

In the Claims

The following Listing of Claims replaces all prior versions in the application:

LISTING OF CLAIMS

1. (Currently amended) A power supply system comprising:
 - a DC power supply apparatus;
 - a load device which is connected to said DC power supply apparatus;
 - a charging path which is connected to said DC power supply apparatus in parallel with said load device, said charging path including
 - a lithium ion battery ~~that is connected to said DC power supply apparatus in parallel with said load device,~~
 - a charging current limiting circuit ~~which is provided with a charging current control element,~~ that is connected in series with said lithium ion battery and supplies a charging current of an arbitrary value independent of load fluctuations in said charging path ~~of the lithium ion battery,~~ and
 - a switch that is installed in said charging path in series with said lithium ion battery and is provided with such function that disconnects said lithium ion battery from both of said DC power supply apparatus and said load device when the cell voltage of said lithium ion battery shows overcharging or over-discharging of said lithium ion ~~batter~~battery, or connects said lithium ion battery to both of said DC power supply apparatus via said charging current limiting circuit and said load device in a normal state so that said charging current limiting circuit supplies said charging current to said lithium ion battery while said DC power supply apparatus supplies a current to said load devices; and
 - a control circuit that monitors the voltage value of said charging path, performs a reference voltage value used for setting the charging current of said arbitrary value in said charging current limiting circuit, and controls said switch when said voltage of said charging path exceeds a specified voltage value during charging.
2. (Original) The power supply system in accordance with claim 1, wherein a plurality of said lithium ion batters are connected in series, and

said power supply system is further provided with a voltage regulation circuit that is connected in parallel with each lithium ion battery of said plurality of series-connected lithium ion batteries, detects a full-charge voltage in each of said lithium ion batteries and bypasses said charging current.

3. (Currently amended) A power supply system comprising:

a DC power supply apparatus;

a load device which is connected to said DC power supply apparatus;

a charging path which is connected to said DC power supply apparatus in parallel with said load device, said charging path including

a plurality of series-connected lithium ion batteries ~~that are connected to said DC power supply apparatus in parallel with said load device,~~

a charging current limiting circuit, ~~which is provided with a charging current control element,~~ that is connected in series with said plurality of lithium ion batteries and that supplies a charging current of an arbitrary value independent of load fluctuations in ~~the said~~ charging path ~~of said plurality of lithium ion batteries,~~ and

a switch that is installed in said charging path in series with said lithium ion battery and is provided with such function that disconnects said plurality of lithium ion batteries from both of said DC power supply apparatus and said load device when the cell voltage of said lithium ion battery shows overcharging or over-discharging of any of said lithium ion batteries, or connects said plurality of lithium ion batteries to both of said DC power supply apparatus via said charging current limiting circuit and said load device in a normal state so that said charging current limiting circuit supplies said charging current to said lithium ion battery while said DC power supply apparatus supplies a current to said load device;

a voltage regulation circuit, ~~which is provided with a bypass current limiting element,~~ that is connected in parallel with each lithium ion battery of said plurality of series-connected lithium ion batteries, detects a full-charge voltage in each lithium ion battery and bypasses said charging current; and

a control circuit that monitors the voltage value and current value of said charging path, sets a reference voltage used for setting the charging current of said arbitrary value in said charging current limiting circuit and performs a full-charge reference voltage setting in said voltage regulation circuit, and switches said switch when said voltage of said charging path

exceeds a specified voltage value during charging.